What is claimed is:

1. A communication method, comprising:

performing an amplification operation on each of a first through Nth subcarrier signal to produce first through Nth amplified subcarrier signals, wherein N is a positive integer; and

operating a combining circuit to combine the first through Nth amplified subcarrier signals to generate a frequency division multiplexed transmission signal.

2. The method of claim 1, wherein said first through Nth subcarrier signals are analog signals and wherein said step of performing an amplification operation on each of the first through Nth subcarrier signals includes:

performing an analog signal amplification operation.

3. The method of claim 1, wherein said first through Nth subcarrier signals are analog signals and wherein said step of performing an amplification operation on each of the first through Nth subcarrier signals includes:

performing, in parallel, analog power amplification operations on a plurality of the first thorugh Nth subcarrier signals.

4. The method of claim 3, wherein at least some of the subcarrier signals have a nearly constant peak amplitude.

5. The method of claim 4, wherein at least some of said analog power amplification operations are fixed gain amplification operations.

6. The method of claim 1, wherein the generated transmission signal is an orthogonal frequency division multiplexed signal.

7. The method of claim 6, further comprising the step of:

transmitting the generated orthogonal frequency division multiplexed signal over a wireless communications channel.

8. The method of claim 1, wherein said first through Nth subcarrier signals are analog sinusoidal signals, the method further comprising the steps of:

operating a plurality of N sinusoidal signal generators to generate said first through Nth subcarrier signals from a plurality of digital input symbols.

9. The method of claim 1, wherein performing an amplification operation includes:

performing the amplification operations on each of the first through Nth subcarrier signals in parallel.

10. The method of claim 9, further comprising the step of:

supplying a different digital symbol to each one of the N sinusoidal signal generators.

11. The method of claim 9, wherein the step of performing power amplification operations on first through Nth subcarrier signals includes:

performing non-linear power amplification operations on a plurality of the first through Nth subcarrier signals.

12. The method of claim 11, wherein the step of performing power amplification operations on first through Nth subcarrier signals further includes:

filtering at least some of the subcarrier signals amplified by performing a non-linear power amplification operation to reduce signal distortions introduced by said non-linear amplification operation.

13. The method of claim 11, wherein said combining circuit includes at least one analog multiplexer and where said step of operating a combining circuit includes the step of performing an analog multiplexing operation.

14. The method of claim 13, wherein said combining circuit includes at least one filter, the step of operating a combining circuit including the step of performing a filtering operation on one or more signals being combined by said combining circuit.

15. The method of claim 9, wherein the step of performing power amplification operations includes the step of:

using a linear power amplifier on a plurality of the first through Nth subcarrier signals, the linear power amplifier used on a first one of said subcarrier signals having linear amplification characteristics at the center frequency of the first subcarrier signal and non-linear amplification characteristics at the center frequency of a second one of said subcarrier signals.

16. A communication method, comprising:

operating each of a first through Nth signal generator to receive a digital symbol and generate an analog subcarrier signal there from, the first through Nth signal generators generating first through Nth analog subcarrier signals;

operating each of a first through Nth amplification circuit to perform an amplification operation on a different one of the first through Nth analog subcarrier signals to generate first through Nth amplified signals; and

operating a combiner circuit to combine the first through Nth amplified signals into a single transmission signal.

17. The method of claim 16, further comprising:

performing a power amplification operation on the transmission signal.

18. The method of claim 17, further comprising the step of:

transmitting the amplified transmission signal over a wireless communication channel.

19. The method of claim 17, wherein the analog subcarrier signals are sinusoidal signals.

20. The method of claim 16, wherein the step of operating each of a first through Nth signal generator includes: operating the first through Nth signal generators in parallel.

21. The method of claim 20, wherein the step of operating each of a first through Nth amplification circuit includes operating the first through Nth amplification circuits in parallel.

22. The method of claim 21, wherein the step of operating each of a first through Nth amplification circuit includes the step of operating at least some of said amplification circuits to perform a non-linear amplification operation.

23. The method of claim 21, wherein the step of operating each of a first through Nth amplification circuit includes:

operating at least some of said amplification circuits to perform a non-linear amplification operation; and

performing a filtering operation on each of the signals amplified by performing a non-linear amplification operation.

24. The method of claim 16, wherein the step of operating each of a first through Nth signal generator includes:

extracting from a received symbol a magnitude value and a phase value; and

operating a sinusoidal signal generator to generate one of said analog subcarrier signals as a function of the extracted phase and magnitude value.

25. The method of claim 24, wherein the step of operating a sinusoidal signal generator includes the step of controlling the peak amplitude of the generated analog subcarrier signal to be nearly constant over time.

26. The method of claim 16, wherein the step of operating each of a first through Nth signal generator includes:

extracting from a received symbol a magnitude value and a phase value; and

operating a sinusoidal signal generator to generate an intermediate sinusoidal signal as a function of the extracted phase and magnitude value;

operating a cosine signal generator to generate a cosine signal as a function of the extracted phase and magnitude value; and

operating a mixer to mix said intermediate sinusoidal signal and said cosine signal to generate one of said analog subcarrier signals.

27. The method of claim 16, wherein said combining circuit includes a first stage and a second stage, the step of operating a combiner circuit including the step of:

operating a first stage of said combining circuit to combine a first subset of said power amplified signals to generate a first intermediate power amplified signal and a second subset of said power amplified signals to generate a second intermediate power amplified signal; and

operating a second stage of the combining circuit to generate said transmission signal from the first and second intermediate power amplified signals.

28. A communications apparatus, comprising:

a plurality of amplification circuits for performing amplification operations on analog subcarrier signals to produce a plurality of amplified analog subcarrier signals; and

a combining circuit coupled to the plurality of amplification circuits, the combining circuit combining the analog subcarrier signals into an analog transmission signal.

29. The apparatus of claim 28, further comprising:

a plurality of sinusoidal signal generators, each one of said plurality of sinusoidal signal generators being coupled to a corresponding one of said power amplification circuits, each sinusoidal signal generator receiving a digital input signal and generating there from one of said plurality of analog subcarrier signals.

30. The apparatus of claim 29, wherein each sinusoidal signal generator includes:

means for extracting a magnitude and phase value from the received digital signal; and

a sinusoidal signal generator circuit coupled to the means for extracting for generating one of said analog subcarrier signals as a function of a magnitude value and a phase value extracted from the received digital signal.

31. The apparatus of claim 29, wherein each sinusoidal signal generator includes:

a cosine signal generator responsive to information included in the received digital signal;

a sinusoidal signal generator responsive to information included in the received digital signal; and

a mixer coupled to said cosine signal generator and said sinusoidal signal generator for generating one of said analog subcarrier signals from cosine and sine signals output by said cosine and sinusoidal signal generators.

32. The apparatus of claim 31, further comprising:

means for extracting a magnitude and a phase value from the received digital signal and for supplying the extracted values to said cosine and sinusoidal signal generators.

33. The apparatus of claim 29, further comprising:

a digital symbol generator for generating a plurality of digital symbols in the form of digital output signal, each digital output signal corresponding to a different subcarrier, the digital symbol generator being coupled to the plurality of sinusoidal signal generators.

34. The apparatus of claim 33, at least one of the plurality of amplification circuits includes a non-linear filter.

35. The apparatus of claim 34, wherein said at least one of the plurality of amplification circuits includes a filter circuit coupled to an output of said non-linear filter.

36. The apparatus of claim 34, further comprising a linear power amplifier coupled to the combining circuit for performing a power amplification operation on the transmission signal generated by the combining circuit.

37. The apparatus of claim 36, further comprising a communications channel coupled to the linear power amplifier.

38. The apparatus of claim 28, at least one of the plurality of amplification circuits includes a non-linear power amplifier.

39. The apparatus of claim 38, wherein said at least one of the plurality of amplification circuits includes a filter circuit coupled to an output of said non-linear filter.

40. The apparatus of claim 39, further comprising a linear power amplifier coupled to the combining circuit for performing a power amplification operation on the transmission signal generated by the combining circuit.

41. The apparatus of claim 28, wherein the plurality of power amplifiers includes at least one non-linear fixed gain power amplifier.

42. A communications system, comprising:

first through Nth amplifiers for amplifying first through Nth analog subcarrier signals, respectively, to generate first through Nth amplified subcarrier signals, where N is a positive integer greater than 1; and

a combiner circuit coupled to the first through N amplifiers for adding the analog subcarrier signals together to generate a frequency division multiplexed signal.

43. The communications system of claim 42, wherein said combining circuit includes a multiplexer.

44. The communications system of claim 42, further comprising, first through Nth analog signal generators for generating said analog subcarrier signals from first through Nth digital signals, each of the first through Nth analog signal generators being coupled to a corresponding one of said first through Nth amplifiers.

45. The communications system of claim 44, further comprising a digital signal generator for generating said first through Nth digital signals, each of the first through Nth digital signals including a symbol corresponding to a different subcarrier.

46. The communications system of claim 44, further comprising:

first through Nth filters for coupling the first through Nth power amplification circuits to the combiner circuit.

47. The communications system of claim 44, further comprising:

first through Nth filters, each of the first through Nth filters coupling a corresponding one of the first through Nth signal generators to the corresponding one of the first through Nth power amplification circuits.

48. The communications system of claim 44, wherein at least some of said plurality of signal amplifiers are non-linear amplifiers.

49. A communications system comprising:

first through Nth analog signal generators for generating first thorough Nth analog subcarrier signals from first through Nth digital symbols, where N is an integer value greater than 1;

first through Nth amplifiers coupled to the first through Nth analog signal generators for generating first through Nth amplified subcarrier signals from the first through Nth analog subcarrier signals; and

an analog combining circuit for combining the amplified subcarrier signals into a transmission signal.

50. The communications system of claim 49, further comprising:

a digital symbol generator, coupled to the first through Nth analog signal generators, for generating said first through Nth digital symbols in parallel.

51. The communications system of claim 49, wherein said first through Nth amplifiers includes at least one non-linear amplifier.

52. The communications system of claim 51, wherein the at least one non-linear amplifier is a fixed gain amplifier.

53. The communication system of claim 51, further comprising:

a linear amplifier coupled to the combining circuit for amplifying the transmission signal.

54. The communications system of claim 53, wherein the amplified transmission signal is a frequency division multiplexed signal.

55. The communications system of claim 52, wherein each of the analog signal generators includes a sinusoidal signal generator.

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56. A method for use with a communication system including a plurality of subcarrier signal paths, a common signal path and a communications channel having a communications channel group signal delay, the method comprising the steps of:

operating a processing device to calculate a subcarrier signal path group signal delay introduced by a first one of the subcarrier signal paths;

operating said processing device to calculate a common signal path group signal delay introduced by the common signal path;

generating, as a function of the calculated subcarrier signal path group signal delay, calculated common signal path group signal delay, and communications channel group signal delay, a minimum cyclic prefix duration.

57. The method of claim 56, wherein the step of generating a minimum cyclic prefix duration includes the step of:

operating the processor to calculate a weighted sum of the calculated subcarrier signal path group signal delay, calculated common signal path group signal delay, and communications channel group signal delay.

58. The method of claim 56, wherein the step of generating a minimum cyclic prefix duration includes the step of:

operating the processor to convolve the calculated subcarrier signal path group signal delay, calculated common signal path group signal delay, and communications channel group signal delay.

59. The method of claim 56, further comprising the step of:

operating a prefix signal generator to generate cyclic prefixes having a duration at least as long as said minimum cyclic prefix duration.

60. The method of claim 59, using different cyclic prefix generators working in parallel to generate cyclic prefixes to be inserted into subcarrier signals being transmitted on different ones of said subcarrier signal paths.

61. The method of claim 59,

wherein the first one of the subcarrier signal paths is the one of the plurality of subcarrier signal paths which introduces the longest group signal delay into a subcarrier signal, and

wherein the step of operating a processing device to calculate a subcarrier signal path group signal delay introduced by a first one of the subcarrier signal paths includes:

operating the processor to calculate a subcarrier signal path group signal delay introduced by each one of the subcarrier signal paths; and

identifying the longest one of the calculated subcarrier signal path group signal delays as said subcarrier signal path group signal delay introduced by the first one of the subcarrier signal paths.

62. The method of claim 56,

wherein the first one of the subcarrier signal paths is the one of the plurality of subcarrier signal paths which introduces the longest group signal delay into a subcarrier signal, and

wherein the step of operating a processing device to calculate a subcarrier signal path group signal delay introduced by a first one of the subcarrier signal paths includes:

operating the processor to calculate a subcarrier signal path group signal delay introduced by each one of the subcarrier signal paths; and

identifying the longest one of the calculated subcarrier signal path group signal delays as said subcarrier signal path group signal delay introduced by the first one of the subcarrier signal paths.